8.0 ALTERNATIVES TO PROPOSED CONSERVATION MEASURES

The DCPUD has considered several alternatives to the measures discussed in the preceding sections of this plan and has analyzed the relative benefits and disadvantages of each. The following paragraphs briefly describe the alternatives considered and the principal reasons for their elimination. Additional discussion of alternatives to the proposed plan is contained in the Environmental Assessment for the Mid-Columbia Mainstem Conservation Plan and the Wells HCP prepared by the NMFS and the USFWS.

ACTIONS ELIMINATED FROM FURTHER CONSIDERATION

Spill as the Primary Bypass Measure

Spill has been shown to safely pass fish past the Wells Project, but the relative passage efficiency of the spillway is low compared to the highly efficient bypass system. Approximately, 7 percent of the average daily flow is used to operate the Wells juvenile bypass system. This volume of water passes an average of 89 percent of the migrating juvenile spring and summer migrants.

Turbine Intake Screens as Primary Bypass Measure

Turbine intake screens were considered initially in the development of a bypass system for the Wells Project. However, because of the Project's unique hydrocombine design that places the spillway directly above the turbine intakes (thus, no gatewells to collect the fish from the screens), the use of turbine screens was eliminated from further consideration.

ALTERNATIVES ELIMINATED FROM DETAILED CONSIDERATION

Operation of Wells Dam with a Non-power License

The use of the project in non-power mode, while still providing for flood control, recreation and other project purposes, would require spilling 100 percent of river flow, which could increase TDG to environmentally detrimental saturation levels. The absence of electrical energy generation would also eliminate the only available source of revenues for other measures in the plan, such as predator control and off-site activities such as hatcheries and habitat restoration, all of which would still be needed to meet the overall salmonid productivity goals of the plan.

Dam Removal

Removal of Wells dam would eliminate the need for an HCP, thus it is not considered as a mitigative

measure in this HCP.

Reservoir Drawdowns

Reservoir drawdowns have been proposed as a universal tool for improving fish survival through mainstem Columbia River hydroelectric projects. The premise that a reservoir drawdown would improve survival is based on three assumptions: 1) fish migration speed is proportional to water particle travel time (WPTT) (or average flow velocity); 2) faster migration through the reservoir improves the survival rate of fish and; 3) the improved survival rate from reduced travel time exceed detrimental effects of drawdown on the target species. Drawdown has not been included in the toolbox of on-site mitigation measures. Travel time studies conducted by the Fish Passage Center have shown a strong correlation between WPTT and flow levels in the mid-Columbia River, but only a weak correlation between WPTT and juvenile fish travel time. No evidence from the mid-Columbia supports the premise that reduced travel time of salmonid species increases survival. The detrimental ecological effects of drawdown include reduction in habitat and food organisms that ocean-type chinook salmon depend on when rearing in mid-Columbia reservoirs, including Wells reservoir. Drawdowns would also disable the project fishways, blocking the upstream migration of adult salmonids.

Juvenile Transportation

There is currently no feasible means to capture fish and transport juvenile salmonids around the Wells reservoir and dam. Studies of fish transported directly from hatcheries in the mid-Columbia River determined that homing of transported fish was significantly impaired.